Finding your way in the Wilderness

I was lost. A strip of old blue survey tape hung from the lower branch of a tree. I'd seen the tape before. Five times. Somehow, I'd made another circle and was right back where I'd started. The sun was hidden behind a layer of clouds, so I had no sense of direction. I just knew I was on North Mountain, it was getting late, and I had no food, no water, no map, no compass, and no extra clothes. The initial panic that had fueled my endless circling faded. I had to come up with a plan.

I thought I had a good sense of direction. I thought I knew my way around the woods on North Mountain, but take away one thing—such as the sun—and the picture changes. Getting lost can happen quickly and unexpectedly. I've heard countless stories about someone getting up in the middle of the night to go to the bathroom and ending up wandering around aimlessly until dawn looking for their tent. I know of people who left their pack while they ran up a ridge to see the view, only to be unable to locate it upon their return. I've walked past numerous trail junctions and continued merrily along the wrong way because I was so deep in conversation I neglected to look at the map. Most of the time these moments are fleeting—more disorienting than anything else—but sometimes people end up hopelessly lost and require rescue. Rescue in the Wilderness is costly both in terms of its impact on the land and on the people who come looking for you. Having some basic navigational skills can help you stay found. They can also open up vast areas of Wilderness for you to explore once you are comfortable leaving the trail behind.

The first step to finding your way around the Wilderness is to develop your sense of awareness of the world around you. Have you been following a river for the last hour? How many tributaries have you crossed? Is there a ridge behind you or a peak in front of you that is distinctive? Look over your shoulder. How do things look from this perspective? Does a cliff face suddenly peek up over the trees that you missed looking from the other direction? Where's the sun and what time is it? If it is 8:00 a.m. and the

sun is directly in front of you, you can feel confident you are heading east or slightly southeast even if you planned to go west when you left camp. Remember to glance around and make a mental note of what you see. All too often, particularly when we are tired from hiking all day, our eyes get glued on the boots of the person in front of us. We can become so lost in our thoughts that we don't even notice that we crossed a river or hiked by a long, narrow lake. These clues—lakes and rivers and peaks and valleys—are critical to navigating in the wilderness.

In addition to your eyes, you need a few tools to help with your navigation. First you need a map. Road maps are generally *planimetric maps*, which means they show the world as if it was two-dimensional. This type of map works fine when your next exit will be marked with a sign, but in the Wilderness you need more information. Instead of signs, your road markers are going to be mountains and streams, and you need a map that shows these features if you want to be able to make the right turn. The most effective map for Wilderness travel is one that captures three-dimensional features in two, such as a *topographic map.* Topographic maps use contour lines—or lines that represent the same elevation—to recreate the ridges and valleys that make up the land around you.

To understand how contour lines work, sit down and flex your knee. With a pen, trace your way around your kneecap starting a half an inch below the top. Take care that your line stays at exactly the same level all the way around—no ups or downs allowed. Now move down another half inch and trace a second circle. Continue to make several more circles at half-inch intervals. Now straighten your knee. What you'll see is a bull-eye target—a flat representation of your flexed knee. If you were careful with your measurements, the lines should be closer together on the outside of your knee where the slope is steepest. The lines should be further apart where your shin meets your knee because there is less slope angle there. Topographic maps do the exact same thing, but on a much larger scale.

The contour intervals for your knee are half an inch. On a topographic map, this interval will appear in the margin and may be as little as 10 feet in relatively flat areas or as much

as 100 feet in more mountainous terrain. Contour intervals give you the scale of the vertical world the map represents. In addition, every map will have a scale for horizontal distance. On a map of the entire United States, one inch may equal 200 miles. On a 7.5 minute United States Geological Survey (USGS) topographic map, on the other hand, 2.5 inches equals a mile. You can tell from the differences in these scales that a 7.5 minute map is going to give you a lot more detail about the world you will be passing through and for that reason, large-scale topographic maps are most useful for Wilderness travel.

In addition to scale and contour intervals, most topographic maps contain information about what you can expect to find on the land's surface. For example, the color green indicates vegetation, either brush or trees. Black is used for man-made features such as cabins or roads. Blue indicates water, and white marks open areas or permanent snow. Contour lines are done in brown, and red is used for major highways. Perhaps one of the most critical, but often overlooked, pieces of information on the map is the date it was made. Many USGS maps are 20-30 years old. The mountains and rivers depicted on the map have probably not changed significantly since it was printed, but man-made features may have, so be careful about trusting a trail if you are navigating off an old map.

A simple way to get used to using a topographic map is to start in a place you know. Orient the map so that it reflects the terrain surrounding you. Now match every feature—large and small—that you can see to its representation on the map. Look carefully at the way each peak looks on paper. Take note of shapes and size. Get a sense of the scale of things. How far away is that mountain when you look at it? How far does it look on the map? What does a cliff look like? How about a long, round ridge? Map reading is like learning a language. It takes practice to become familiar with the perspective, scale and symbols, so it is important to practice before you need to rely on your map reading skills to get you out of a fix.

For some people, writing out a travel plan for the day based on the map is a useful way to plan ahead and anticipate what you might encounter along the trail. For example, by looking over the map, you might write down that you will be walking two miles east of

your original camp along the north side of Caribou Creek. Along the way, you anticipate crossing two minor tributaries coming in from the north. The third tributary, Jewel Creek, flows into Caribou Creek from the north two miles away from your starting point. Here you plan to turn north and hike for three miles along the west side of Jewel Creek. Panther Knob will be to your west, and so forth. By writing down the landmarks you will pass along the trail, you will be able to recognize when and where you need to change directions. This method will also help you figure out your pace. If you see that it takes you 50 minutes to hike two miles on a trail, you can gage how long tomorrow's 10-mile trail hike will take and plan accordingly.

Compass Use.

In addition to a map, a compass can be helpful in the Wilderness, particularly in places where visibility is limited by weather or trees, or the terrain is flat and featureless. The earth has a magnetic field that runs approximately along its north-south axis. The magnetized needle in your compass aligns itself along this line, so that it always points toward magnetic north. Because of this property, you can use a compass to orient your map toward north, take and follow a bearing, and triangulate your position to within a few hundred yards. (These skills take training and practice. For more information and how-to-instructions, see the resources listed below.) Together with a detailed topographic map, a simple compass gives you all the information you need to navigate through most of America's Wilderness. You can buy electronic locational devices, or Global Positioning Systems (GPS) that are remarkably accurate. In some places, such as Antarctica, such devices are invaluable due to the lack of distinctive landmarks for miles and miles. But while electronic locational devices can pinpoint your exact location, they can't tell you what's ahead of you or which way to go around a mountain. For these reasons, an electronic locational device is best used in conjunction with a map and compass.

Links and Resources:

Great Outdoor Recreation Pages (GORP) has a section on basic map and compass use. Go to: http://www.gorp.com/default.htm and then search for the activity you are interested in learning about, such as navigation, for more information.

REI's "Learn and Share" department has step-by-step instructions on map and compass use. Go to http://www.rei.com/ for more information.

Get-Outdoors.com carries information on outdoor gear, skills(including orienteering skills), clubs, events, destinations and trails throughout the U.S. and overseas. Go to http://hemmingway.getoutdoors.com/servlet/GetOutdoors.Main.MainServlet for details.

How To Use A Compass at http://www.uio.no/~kjetikj/compass/ takes you step-by-step through basic compass use both with and without a map.

The United States Geological Survey (USGS) website contains basic information about the various maps that they make and allows you to order maps online. http://www.usgs.gov/

Trailworks.com is an internet site that allows you to create your own custom maps. Go to http://www.trailworks.com/ for more information.

Books:

Fleming, June, *Staying Found: The Complete Map and Compass Handbook,* 2nd Ed. Seattle: The Mountaineers, 1994.

Graydon, Don, *Mountaineering: The Freedom of the Hills,* 5th Edition, The Mountaineers, Seattle, WA, 1992

Harvey, Mark, *The National Outdoor Leadership School's Wilderness Guide,* Fireside Books, New York, 1999

Jacobson, Cliff, *The Basic Essentials of Map and Compass,* ICS Books, Inc, Merrillville, IN, 1988

Randall, Glenn, *The Outward Bound Map and Compass Handbook,* Lyons and Burford, Publishers, New York, NY, 1989

Seidman, David, *The Essential Wilderness Navigator: How to Find Your Way in the Great Outdoors,* Camden Maine: The McGraw-Hill Companies, Ragged Mountain Press, 1995.

Other information sources:

Compasses manufactured by Silva and Brunton both come with detailed manuals that can get you started.